

Notes on Paraneuroptera for 1922. (Eastleigh, etc.)

By FREDK. J. KILLINGTON, A.C.P.

This has not been a good year on the whole for Dragonflies, although on some fine days certain species were in abundance, notably *Agrion mercuriale*, Charp., *Calopteryx splendens*, Harris, *O. aenea*, Linn., and *Brachytron hafniense*, Müll.

The first dragonflies seen were two teneral specimens of *Pyrrosoma nymphula*, Sülzer (May 8th), but these were not taken, and it was not until May 21st that the species was well out, although still mostly in teneral condition. The last capture of the season was on September 16th when *Ischnura elegans* var. *infuscans*, Campion, was captured.

Cordulegaster annulatus, Latr.—Very few of this fine insect have been seen this year. Among alders by the Beaulieu River in the New Forest I noticed a pair "in cop." (June 5th).

Brachytron hafniense, Müll.—Large numbers of this dragonfly were seen on June 12th, at a large pond near Eastleigh, but most of those taken were badly damaged.

Aeschna mixta, Latr.—A specimen of this species was seen at rest, just out of reach but near enough for identification, at a pond here on September 2nd. A male was picked off a bramble twig in a brickfield at Southampton on September 9th. Mr. H. Campion informed me (September 21st, 1922), that a specimen was knocked down by a builder with a trowel in the grounds of the British Museum (Nat. Hist.).

A. cyanea, Müll.—This species has not been plentiful here this year, the first specimens were taken on August 5th, and the last on September 2nd.

Anax imperator, Leach.—This species was fairly common here on June 12th, and a pair "in cop." were netted as they drifted low over the grass at the pond side; the female was much damaged.

Cordulia aenea, Linn.—A species which seems to have been common this season. On June 1st a specimen was brought to me for identification taken at Botley (near Fareham), and several were taken near Lyndhurst on the same day. On June 5th I counted 20 in the latter spot, and noted a pair, united "hoop-fashion," drift swiftly out of sight over the tree tops. Two pairs were seen to act in the same manner at Eastleigh, on June 12th, where the species was in extraordinary numbers.

Libellula quadrimaculata, Linn.—It was first noticed on May 24th, at Beaulieu, and the last was taken at Eastleigh on June 12th. On June 3rd, it was observed pairing and ovipositing.

L. depressa, Linn.—This species was noted on several days, near Eastleigh, between May 28th and June 12th, and was seen pairing and ovipositing on June 3rd.

O. coerulescens, Fab.—One very teneral male was taken at Beaulieu on June 5th, but I had no further opportunity to notice the species. The male taken, in spite of its very immature condition showed faint traces of blue colouring.

Sympetrum striolatum, Charp.—This species was noticed first on August 5th, at a shallow woodland pond at Chandler's Ford. The day was very dull with rain threatening all the time, but imagines were emerging from their brown stumpy larval-skins in numbers. Empty larval-skins could be seen clinging in various situations: some clasping

reeds, others clinging to the rough surface of a wall that holds in the water on one side, and others, again, were hanging to rotting tree stumps and boughs projecting from the surface of the pond. A few newly-emerged imagines were trying their wings in flight despite the sun's absence. The species was common on Southampton Common, and in late August specimens were noted flying over the Winchester Downs.

Calopteryx virgo, Linn.—This species was fairly plentiful in the New Forest on June 1st and 5th.

C. splendens, Harris.—An exceptionally abundant dragonfly at Eastleigh and at Alton in 1922. On May 21st, the first specimen, a general male, was seen at Eastleigh by the R. Itchen. The following day numbers were emerging, the empty larval-skins dotting the vegetation on the riverside. The species continues on the wing for at least half an hour after sunset. By May 25th the insects were frequently seen pairing, and while copulation took place the pairs rested among the grasses. One pair I managed to secure, and by quickly killing the male, prevented their separation. The superior appendages of the male were noticed to grip over the hind ridge of the prothorax of the female, while the inferior ones held the front of the female's prothorax; there was a very noticeable resistance when an attempt was made to separate the specimens. On May 28th a female was taken devouring a caddis-fly. The tow-path by the R. Itchen was, by this date, littered with hundreds of wings of this species, but I failed to see any bird attack the insects, and a water-keeper who expressed astonishment at the sight failed to find out what was responsible for the massacre. My suspicions rested on the large number of cuckoos that haunt the locality, but I could gain no definite proof. Numbers of the dragonfly were also noticed in spiders' webs. So common was this beautiful insect that in a square yard of meadow, on June 10th, I counted 33 males resting. On June 12th a specimen was taken with larval water-mites on the underside of the thorax. In spite of the wretched weather a few specimens were still about on July 31st.

Ischnura elegans, Vander.—This was another common dragonfly in 1922, and was first seen on May 31st at Eastleigh. On June 10th var. *rufescens*, Steph., was taken by the R. Itchen, and again on June 12th at a woodland pool here. A specimen, taken on the latter date, had a larval water-mite on the underside of the thorax, and several along the mid-ventral line of the abdomen. On the same day a number of specimens of the female were taken of two distinct forms. Some of the specimens were of a lovely bright violet colour in place of the usual blue on the head, thorax, and first two abdominal segments, a colour sometimes found on miniature Agrionid dragonflies, but a few of these violet forms seemed so immature that I came to the conclusion that they constituted a good mature variety. I have since discovered, through the kindness of Mr. H. Campion, that both Roster and De Selys named a violet form of the female of *I. elegans*. As to his var. ♀ *exigua*, while admitting that it corresponds in colour with the immature form, Roster states that the immature coloration sometimes persists throughout life. Referring to var. *violacea*, Selys., Schirmer speaks of it as "ausfärbungsform," without qualification (*Arch. Naturgesch.*, Berlin, LXXIX., A. 2, p. 31, 1913).

The other colour form referred to above has the normal blue replaced by a fresh grass-green colour. My specimens of this form unfortunately met with an accident, and I am not in a position, therefore, to say much about them, except that the form was not uncommon, and some of the specimens undoubtedly immature. As var. *infuscans*, Campion, occurs here (the last *I. elegans* taken in 1922 was a specimen of this form on September 16th), it is quite possible that the insects I took were immature specimens of this variety.

Agrion pulchellum, Vander.—Only one specimen of this insect, a female, was taken here on May 28th.

A. mercuriale, Charp.—This species was common this year in its restricted locality. It appeared, suddenly, on May 30th, in good numbers, males and females being equally abundant. Empty larval-skins were obtained as the specimens emerged. The short caudal lamellae, 3 mm.-3.25 mm., are obviously characteristic of the species, which breeds here in a swift-flowing part of the R. Itchen. On June 10th males and females were noticed "in cop." A number of males were taken with aberrant markings on segment 2 of the abdomen: specimens with the two horns of the "Mercury" mark detached were fairly common; on June 1st a specimen was captured with only the right horn detached, and on the 10th another male had only the right horn detached.

A. puella, Linn.—Noted first on May 28th; and on the 31st specimens were pairing. Very few specimens of this little dragonfly were seen in the New Forest on June 1st, or on the 5th, but on the 12th many pairs of the insect were seen at Eastleigh, and an interesting variety of the female was taken "in cop." with a typical male. In this aberrant female the blue colouring of segments 4, 5, and 6, occupies quite a third of each segment and is not bisected by a black mid-dorsal line, and on segments 3 (bisected by a black line) and 7 (almost bisected) is larger than normal.

Pyrhosoma nymphula, Sülz.—I have already mentioned that this species was the first seen in 1922 (May 8th), but it was not until May 21st that the species was well out, although still for the most part in teneral condition. On the 22nd a teneral pair were taken "in cop.," and it was obvious that the female had only emerged that morning. In the New Forest, on the 24th, the dragonfly was plentiful. On May 25th, at 11 a.m., a specimen was noticed by the R. Itchen emerging from its pupal skin. On May 30th two var. *melanotum*, Selys., were taken here, one being of a very extreme form; the same variety was also taken in the New Forest on June 5th. Several females were watched, on May 31st, as they were ovipositing, their abdomens and wings being completely under the water. On two occasions I took this dragonfly with prey: at Eastleigh (May 29th) a specimen was taken with the Alder-Fly, *Sialis lutaria*, Linn., and at Beaulieu, in the New Forest, another was taken (June 5th) with the Lacewing, *Chrysopa perla*.

Enallagma cyathigerum, Charp.—This dragonfly was in teneral condition on Southampton Common on May 14th, and was plentiful at Eastleigh by June 12th.